UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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MEMORANDUM

DATE: August 25, 1998

SUBJECT: Review of the Revised Engineering Evaluation and Cost Analysis (EE/CA) for the Master Metals, Inc. Site, Cleveland, Ohio

FROM: Pat Van Leeuwen
Toxicologist
Office of Superfund

TO: Jeff Heath
Remedial Project Manager

At your request, I have reviewed the revised EE/CA for the Master Metals, Inc. (MMI) site in Cleveland, Ohio, dated July 22, 1998. While the revised risk evaluation has been completed according to the recommendations of USEPA and Ohio EPA, and is now based on the EPA guidance document *Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil* (EPA 1996), some issues have not been addressed correctly while others remain unaddressed. It appears that there are enough inaccuracies in this EE/CA to require another revision.

The problems with the revised ENTACT document are discussed in further detail below. I would be happy to discuss these comments in further detail with you or the contractors if that is desirable. I can be reached at 312-886-4904.

Specific Comments:

1) General

It should be noted that the term"Risk Evaluation" is a misnomer in this EE/CA. No risk data for

any population of concern is presented in this document. The EPA Adult Lead methodology was used only to develop a site Risk-based Remediation Goal (RBRG) based on one selected receptor population.

2) Table, Section 2.1.5 Surrounding Land Use and Populations
This table should be noted because it summarized the demographic data for the population residing in close proximity to the MMI facility. The data demonstrate that this population has a slightly greater percentage (27.8%) of black and Hispanic members than the National comparison value based on 50 States and DC (20.8%). This data appears to have been used to develop input values for the lead modeling that follows. However, it is not clear how the population in close proximity to the MMI site reflects either the potential On-Site worker population at the site or the Construction worker population; the latter groups are the populations of concern for this risk evaluation. A better source for information on worker populations may be the demographics for Cleveland, Ohio or the commercial/industrial worker and construction worker demographic data for the area. In any case, some further discussion of the applicability of the data on the close-by resident population for this site evaluation is needed.

3) Section 2.3.2, third para.
The text indicated that soil lead concentrations up to a level of 1,850 ppm are not atypical concentrations in urban areas which are heavily traveled by automobile traffic. EPA considers that soil lead concentrations in excess of 400 ppm exceed the level of concern for exposure to children, regardless of the source. If soil lead concentrations are greater in samples taken in close proximity to the highway, this should be indicated in the text. It is not clear that the source of this lead is site-related due to the distance from the site; however, this issue should not be dismissed without additional discussion because of the air violations cited against MMI in the not-too distant past.

4) Same Section - Discussion of Off-Site sampling along Quigley Avenue
EPA had previously noted that the data presented in the 1998 EE/CA Data Report for samples taken at varying distance from the site property were used to support the conclusion that there has not been extensive offsite migration of lead in the sampled areas. The present text again cites this data, indicates that the average soil lead concentration for these nine off-site samples (OS-01-03 to OS-09-03) is 375 mg/kg, and goes on further to compare this average soil lead concentration with the Superfund soil lead screening level of 400 mg/kg.

EPA believes that the averaging of samples taken at random to determine if they present a risk, without some consideration of the exposure scenario, does not seem to make much sense. Samples should only be combined in a manner which is consistent with the exposure to some population of concern. No scenario where an off-site receptor would have equal opportunity for exposure to each of the off-site sampling points on a routine basis could be envisioned.

A better comparison to the residential lead soil screening value would be offered by looking at each of the off-site sampling point concentrations and comparing it to the relevant receptor population. As this appears to be a commercial-industrial area, the relevant receptor would be an

area worker. Alternately, the three samples in the triangular area bounded by Quigley Avenue, west Seventh Street and the 1-490 Bypass might be averaged to look at the exposure in this more confined area. The average lead soil concentration in this area, as defined by samples OS-07-03, OS-08-03 and OS-09-03, is 590 mg/kg. Use of this triangular area for any recreational activity could potentially result in exposure to a child population as the average soil lead concentration exceeds the residential soil lead screening level of 400 ppm. Perhaps no further analysis on this data is needed as only the soil concentrations in the triangular area might be considered to present a risk, and then only potentially to children frequenting this area. This may not be a real possibility, but it should be discussed. The remainder of the text suggests that other sources (i.e., the I-490 Bypass) might contribute to the lead contamination in this area; however, it is still not clear why the lead concentration at sampling point OS-08-03 is elevated, while the soil lead concentration at point OS-09-03 is so low (170 mg/kg). This entire issue requires further discussion.

5) Section 2.3.3 Perimeter Sample Results

The last sentence in this section is extremely misleading. The text should explain that for the perimeter samples whose XRF readings ranged from 72 mg/kg to 375 mg/kg, the laboratory results showed good agreement. When the lead concentration became more elevated (laboratory value of 870 mg/kg), the agreement was poorer, although the average difference between XRF and laboratory values of all four samples was only slightly elevated (1.2). In no case was a higher lead concentration measured by XRF analysis.

6) Section 2.3.4 Groundwater

This discussion is confusing. The section begins with a reference to the 1990 sampling, but lists the 1991 CDI results as the results of this sampling round. In addition, it is not clear whether the direction of the groundwater flow should be listed as a result of this sampling. The text continues the discussion by referring to "another" round of groundwater sampling, although the date of this sampling is not given. The results of this sampling are then discussed. This section should be reviewed to ascertain that it accurately reflects the results of the groundwater sampling rounds. Whether the 1991 results reflect filtered or unfiltered sample data should also be clarified in this discussion. Finally, it is clear that the filtered samples exhibit a lower concentration of most metals than unfiltered samples, contrary to the statement in the text. It is for just that reason that EPA does not use data from filtered samples for risk assessment purposes.

No TCLP analysis data of soil samples is included in this report, although TCLP analysis of soil samples prior to removal activities indicates a high solubility potential. Data currently presented does not seem to be adequate to rule out future migration to groundwater from lead concentrations in soil.

7) Section 2.3.6 Site Impact and Potential for Releases

The discussion in comment 4 above should be reviewed and incorporated into the discussion on the Quigley Avenue sampling as it relates to the triangular area adjacent to the apartment playground. If this area is used by neighborhood children, further sampling would be necessary

to determine that there is no risk to children frequenting the area. The soil lead level of 1200 ppm detected in one of three samples in this area is above the level of concern for child exposure, as is the area average. The text discussion does not accurately reflect this potential for risk to children in the area.

8) Same Section, last paragraph

Again some of the text is confusing. The statement that "lead is not very mobile and tends to attenuate rapidly over short distances" is not supported by any site-specific data, and may not be correct for the lead found at the MMI site. Soluble lead is very mobile and high concentrations of soluble lead can provide a constant source of leachable lead to off-site areas. TCLP data should be presented to support the text conclusions that the site lead is not mobile. The discussions in Appendix A suggest that some of the on-site lead is derived from paint. The lead species generally used in paint are very soluble. If there is no TCLP data, there is no basis for the text conclusions.

Also, it is not clear why deed restrictions need to be placed on groundwater usage or why they should be taken seriously if imposed. The justification for a deed restriction is a demonstrated risk related to contaminant exposure or release. If there is a potential for lead contamination which remains on-site to be mobilized under certain conditions, or if there is TCLP data to suggest that the soil lead is leachable, this should be discussed. This paragraph clearly requires some further thought.

9) Section 2.5.1 Exposure Pathway Evaluation

The primary pathway of exposure to lead for most receptor populations in either a residential or occupational/industrial setting is incidental ingestion of soil and dust.

10) Figure 2.8 Site Conceptual Exposure Model (SCEM)

The Site Model only considers one receptor population, which is listed as "Current Receptors: On-Site Workers". To my knowledge, the site is essentially razed, and there are no current receptors. However, the potential receptor populations, given the Current Land Use, are On-Site workers and the Construction workers who will develop the site into a useable commercial/industrial facility. The SCEM should be corrected to show these receptor populations in the proper context. These **two** receptor populations should be addressed in the risk evaluation.

11) Section 2.5.2 Risk Evaluation

The title of this section is not quite correct, as the text does not present the risk associated with any receptor population or even offer a comparison of on-site and off-site soil lead levels with some screening level. Instead, this section discusses the development of a risk-based cleanup goal consistent with the EPA goal that the probability that the fetus of an on-site worker will have a blood lead level no greater than 10 ug/dL is less than 5%. Estimating a soil lead concentration to meet these criteria is not quite the same as evaluating the probability of risk to this population, although the equations presented in the EPA Methodology can be rearranged to do this. The title should be consistent with the objectives discussed in the section.

12) Same Section, para 5

The text states that the RBRG is " based upon the target group and a future industrial land use". EPA assumes that "target group" means the target population of concern. As EPA previously stated, there may be more than one relevant target population for the site. EPA focussed their assessment on the risks from lead exposure to a full time worker population. In addition, because construction activities appear to be required to redevelop the site into a useable facility, the exposure to a construction worker was also evaluated. The TRW Interim Adult Approach was used in both evaluations, and additionally to develop a RBRG for the MMI site. This EE/CA appears to be deficient as it does not address this additional population of concern.

The term "future industrial land use" appears to be inconsistent with the term "Current receptors" used in Figure 2.9. These points should be addressed in the revision.

13) Same Section, next pars.

The text states that the "rationale" for the default values which have been used in this document are presented in Appendix A. Appendix does not contain any discussion of the input values - either the appropriateness of the default values or the derivation of the site-specific values - used in this EE/CA. The Appendix should present more discussion on the selection of the input values, uncertainty in the calculation due to the selected values and impact on the calculated RBRG.

14) Same Section, last para.

The last section states that the RBRG calculated in this EE/CA is "likely to be a conservative representation of the soil lead [cleanup] level". It can easily be shown that the derived RBRG is not really a conservative estimate for the reasons presented below. These issues should be addressed in the discussion in Appendix A and in any other sections of the assessment where appropriate.

a) The text states that the "target group for this analysis is a full time outdoor site worker". However, the soil ingestion rate (IR) of 0.05 g/day for "predominately indoor occupational exposures" is used to develop the RBRG. More soil contact-intensive activities usually result in a higher ingestion rate. EPA suggests that internal consistency is needed here.

b) The manner in which the site-specific GSD and $PbB_{adult,0}$ were derived is not discussed. It appears that the demographic data for residents in close proximity to the site were used to develop these input values, even though the RBRG does not apply to residential exposure and it is not clear how the residential population demographics relate to the on-site worker or construction workers populations. EPA suggests that appropriate data be used to develop site-specific inputs.

c) The value of 219 days/yr used for the exposure frequency (EF) for the on-site worker population represents the average of a full-time and part-time work force. The text stated that the exposure to a "full time... site worker" would be considered in the development of the RBRG.

The EF for a full-time worker is 250 day/yr. The calculations for the target worker populations should be consistent with the text description of these populations; a RBRG derived for less than full-time exposure may not be protective for a full-time worker. In addition, the comment that accompanies this parameter value in the Appendix A table is not relevant to the selection of the value.

d) The RBRG applies to an average soil lead concentration for a reasonable exposure unit; note the word "appropriate" in the definition of PbS. When applying a derived RBRG as an average value to an entire site area, it must be possible to describe worker activities which will result in exposure to every location considered in the averaged area on a routine basis. This is a very stringent requirement that is not always possible to meet, especially if worker activities which are focused in smaller or more-frequently visited areas of the overall site can be envisioned. Some consideration of how the site "average" will be applied is thus inherent in the development of the RBRG.

14) References

No reference section could be located in the document. The complete references for all cited documents should be included in a separate section of the report.

15) Letter from Ohio EPA, dated May 29, 1998

In section 2.A. of the Recommended Alternatives, point (I), Ohio EPA suggests that the option of stabilization of lead-contaminated soil could be considered to render the material non-characteristic. EPA wishes to emphasize that while stabilized material may be non-characteristic, as defined by the TCLP result, the material has not been rendered non-toxic. Stabilization does not always change bioavailibility, and incidental ingestion of stabilized material may present the same risks as ingestion of non-stabilized material. Therefore the bioavailibility of stabilized material must be considered when determining the disposal alternatives.

16) Additional Comment on the Soil Cap Alternative

It is not clear whether a soil cap can be considered to be a permanent remedy or whether it is only an interim remedy. The Lead Sites Workgroup, which reviews lead risk management decisions and develops guidelines pertaining to the risk management of lead sites, should be consulted on this issue.